

Hitchcock's Machine Tool Blue Book

MARCH, 1933

TWENTY-EIGHTH YEAR

New Uses for the Hand-ee Grinder

- All types of ordinary machine and hand taps, button dies, acorn dies, gun taps, and thread chasers are easily and quickly sharpened **on the job** with Hand-ee Grinder.



- As handy as a file and many times faster. Touches off parts and speeds up adjustments during assembly work. Operates on 110 volt A. C. or D. C. 10,000 R. P. M. Fits the hand. Just plug in and grind.

- \$10.00 with 3 wheel shapes free. Order direct or from your suppliers.

- Ask for Catalog just issued showing many industrial uses.

M. C. Tool Div.

Chicago Wheel & Mfg. Co.
114 S. Aberdeen St., Chicago, Ill., U.S.A.

100 SHAPES AVAILABLE



PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

KRW Hydraulic and Sensitive ARBOR PRESSES

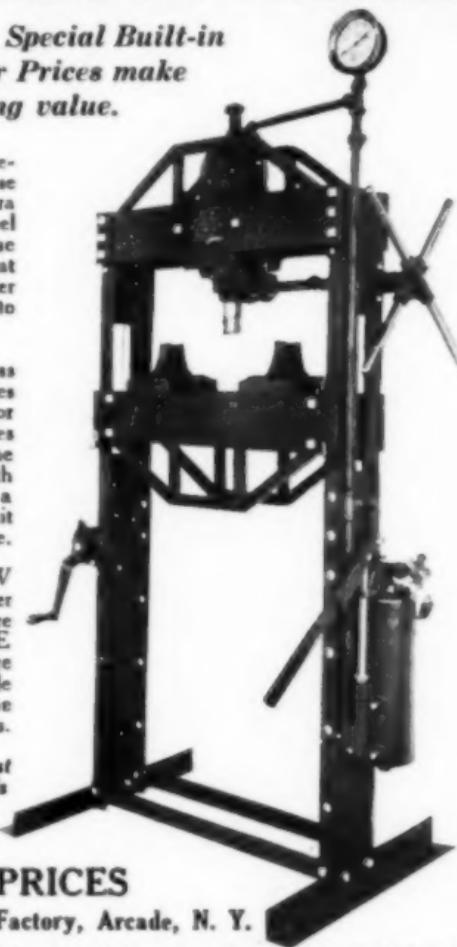
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is NO EXTRA CHARGE for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

F. O. B. Factory, Arcade, N. Y.

No. 37—35 ton Hydraulic and Sensitive Arbor Press (hand operated) \$128.00

No. 37B—35 ton Hydraulic and Sensitive Arbor Press (air-oil operated) 128.00

No. 37E—50 ton Hydraulic and Sensitive Arbor Press (hand operated) 150.00
(Can also be furnished in air-oil operated at same price)

No. 37F—70 ton Hydraulic and Sensitive Arbor Press (hand oper. only) 275.00

Gauge and fittings, \$15.00 extra on all presses.

K. R. WILSON

10-16 Lock Street, Buffalo, N. Y., U. S. A.

EXPORT DEPARTMENT
126 Liberty St., New York

WEST COAST BRANCH
722 Mateo St., Los Angeles

Hitchcock's
**Machine Tool
Blue Book**

Selected
Circulation

Over
25,000

MARCH, 1933

TWENTY-EIGHTH YEAR

Don't Take Less; Don't Pay More

A manufacturer of metal-working equipment cannot call on all of his possible customers.

Hence the need of advertising.

But why stop short of a complete job?

The BLUE BOOK, with its controlled circulation, covers more responsible buying units than is possible by any other method.

And if you don't believe they make good use of it, go into the shops and inquire. We doubt if there is another medium that is quite so popular.

It has the circulation, it has the liking of users and buyers, and its simple and handy form make possible a most reasonable cost to the advertiser.

What more can you get anywhere?

*Let's get together and see if we
cannot work out an advertising plan
that is both effective and economical*

Published By

Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.
Consult the Classified Finding Index for your requirements



Specify

ELCO SCREWS

FOR

Accurate Fit, Uniform High Quality,
Prompt Service



Standard
Sizes
Shipped from
Stock in any
desired
quantity

Send for Samples and Prices

MACHINE SCREWS

MACHINE SCREW NUTS

CAP SCREWS

WOOD SCREWS

PIPE PLUGS

LAG SCREWS

Drop us a card to-day.

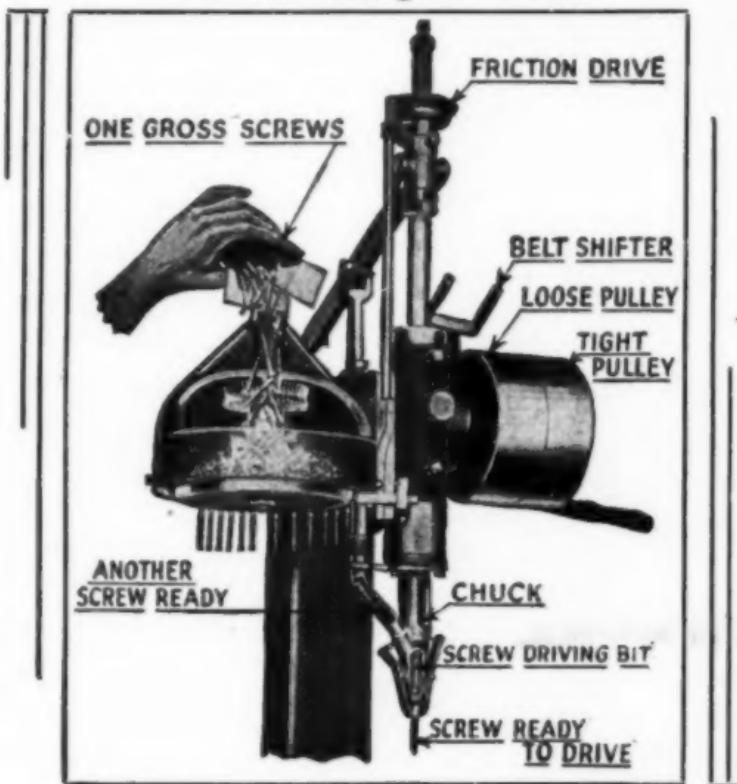
ELCO TOOL & SCREW
CORPORATION

1808 Broadway, Rockford, Ill.

"It Pays to Use Good Screws"



Down Go Screw Driving Costs 65 to 85 per cent



Ask Us To Prove It

HUNDREDS of Plants, the country over, are using the REYNOLDS machine as a means to reduce their costs of production. The automatic magazine feed aids in shaving off 65 to 85% in time and labor costs as compared with obsolete hand methods of driving screws. It also increases the value of the product because of the uniformity and quality which it guarantees. If you are not using this money saving machine it will pay you well to investigate.

Drop us a card today giving length and gauge of screws you use, and dimensions over all of your work, and we'll gladly send facts and figures.

The Reynolds Machine Company
Dept. H. H. Massillon, Ohio

"THE MODERN WAY TO DRIVE SCREWS"

Illinois Plain and Surface Grinder



This machine has been designed to meet the popular demand for those wanting a general purpose grinder. One end is arranged for surface grinding and the other end for tool or plain grinding.

Special Features

Base: Box type construction, with liberal bearing space for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths, long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, runs in 4 Timken tapered roller bearings, adjustment collars to each bearing. Bronze bearings furnished, if desired.

Countershaft: Ball bearing with tight and loose pulley and belt shifting device.

Lubrication: Alemite system for spindle and countershaft.

Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

Made in three
sizes of single
and multiple
spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

Gratitude

Small Boy: Mister, will you lend me two dimes?

Mr. Bridsell: With pleasure.

Small Boy: Then make it four, and thoroughly enjoy yourself.

Underpaid

Young man, said the employer, do you save ten per cent of what you earn?

No sir, said the bright young man, my whole salary is not that much.

In This Motoring Age

The little city girl stood and watched the farmer milk the only cow he had.

The next morning the farmer was much excited, as the cow had been stolen during the night.

Farmer: Drat the thief that stole that cow. He's miles away from here by now.

Little Girl: I wouldn't worry bout it, Mister, they can't get so far away with it, 'cause you drained her crank-case last night.

Help! Help!

Diner: This steak is so tough my knife won't cut it. What are you going to do about it?

Head Waiter: Boy bring a sharper knife for the gentleman.

They Don't Answer

He had purchased a parrot which was rather a young bird and was trying to teach it to talk. He walked close to the cage and said in a loud, clear voice:

Hello! Hello! Hello there! Hello Poll!

He yelled until tired, the parrot paying no attention to him. But when the man stopped for breath, the parrot opened one eye and said, Line's busy.

Cicero the Cynic Says:

Women can keep a secret just as well as men, but generally it takes more of them to do it.



CHAMPION Tool Holders

Save Expensive Tool Steel

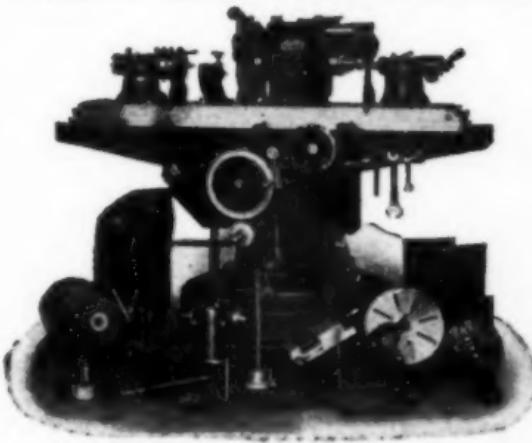
Made of drop-forged steel, thoroughly case-hardened. Absorbs heat from cutter, permits heavier cuts, lessens breakage.

The patented, protruding under-support, equipped with unbreakable "Mac-it" set-screw, increases the bearing for the cutter 40 to 70%, with a corresponding increase in cutter economy. Write for details.

Our Catalog also describes Champion Expanding Mandrels, Vises, Clamps, Emery Wheel Dressers, Shop Furniture, Etc.—Send for it.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

SIX Grinders In ONE



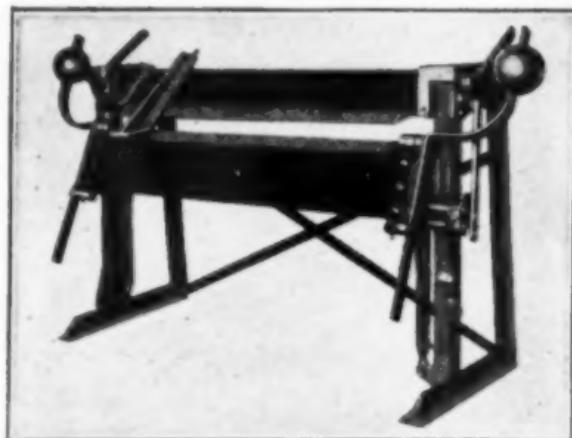
12'x36'
Thompson
Universal
Grinder

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

Let us send you the Illustrated Booklet today!

The Thompson Grinder Company
1534 West Main St., 1-1 Springfield, Ohio

Whitney - Jensen BRAKE



Capacity 16 gauge or lighter.

Can be changed into box or pan brake in 10 or 15 minutes, making it a dual machine.

Bends opposite from any other machine.

Stationary platen makes very square corners possible.

Send for Our Catalog and Complete Information

WHITNEY METAL TOOL COMPANY
95 FORBES ST., ROCKFORD, ILL.

ALLEN POWER BENCH TYPE PUNCH PRESS A HIGH GRADE PRESS AT LOW COST



A small punch press with the features of a heavy machine.

Height 15½". Base size 8½" x 8½". Flywheel 10" dia. Weight 28 lbs. Stroke, standard ¼". Positive Single Pin Clutch. Capacity, soft steel disc ¾" x 1/16". Weight 100 lbs. Power required ¼ to ½ H. P.

Press Fully Guaranteed

Price \$75.00

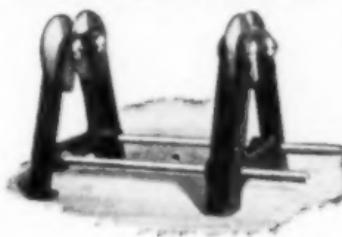
RUGGED—POWERFUL—RELIABLE

Don't use big presses for small work.
Get an "ALLEN."

Send for complete details

Allen-Morris Machine Tool Co.
Fairmount Station, Kansas City, Mo.

Anderson Ever Ready
Exceedingly Sensitive



Balancing Ways

Easy to Manipulate

Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20°	40°	60°	72°	96°	72°
Greatest distance bet. standards.	20°	30°	30°	66°	88°	20°
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.	45	90	150	350	650	
Code	Beam	Bid	Bis	Bib	Bee	

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

STANDARDIZATION PAYS

Universal Joints

Steel and Bronze



*Send for Circular giving specifications
and prices on complete line*

BOSTON GEAR WORKS, INC.

DEPT. HMT.

NORTH QUINCY, MASS.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO

BOSTON GEARS

MORE PRODUCTION

With Higher Speed, Less Spoiled Work, Fatigue or Broken Taps



ETTCO High Speed-Sensitive TAPPING ATTACHMENT

MULTIPLE SPINDLE TAPPING HEADS
With complete engineering service.

FIVE SIZES—UP TO ONE INCH TAPS

Try Ettcos at Our Expense. We have a nice New Circular ??

ETTCO TOOL CO., Inc., 594 Johnson Ave.,
BROOKLYN, N. Y.

VANDERBEEK UNIVERSAL JOINTS



Are used in all kinds of machines where high grade Joints are needed. The very highest grade of workmanship goes into our Joints.



We specialize on Joints

for instrument work and light drive as well as airplane use. Hundreds of thousands of Vanderbeek Universal Joints are in daily use.

Write for Prices and State Your Quantities

American Tool Works, Inc.
25 High St., Hartford, Conn., U. S. A.

Send Us Your Inquiries

We are always glad to forward a memo of any machinery or equipment for which you are in the market to all of our advertisers without charge.

The Blank Form

printed on the other side of this page is for this purpose, and you are free to make use of it without obligation.

It has been the means of bringing many buyers and sellers together, to their mutual profit and satisfaction.

Mail your needs to

HITCHCOCK PUBLISHING CO.

508 S. Dearborn St., Chicago

FREE BUYERS' SERVICE

If you will list below the new or used metal-working machines or machine shop equipment for which you are in the market, and mail it to us, we shall be glad to broadcast it to all of our advertisers. Replies will come from them, not from us.

But if you prefer that we put you in direct touch with the manufacturers of any particular machine tool or other metal-working equipment, let us know and we will endeavor to locate them for you.

Name _____

Address _____

We are in the market for -

Mail to Hitchcock Publishing Co., 508 So. Dearborn St., Chicago, Ill.



"Utility Tools"

Cut Replacement Costs

This Interchangeable Counterbore and Spot Facer is equipped to serve you better, longer and with greater economy—because of

Four Points of Superiority

- (1) Pilots cannot break or twist off.
- (2) Cutters cannot break and are easily removed.
- (3) Set screws cannot loosen.
- (4) The drive is the utmost in simplicity and power.

If you are interested in tool economy, send for catalog; it will pay you

The J. C. Glenzer Company

6469 Epworth Blvd., Detroit, Mich.



MANUAL

SPEED SPOT WELDERS

$\frac{1}{2}$ to 50 K.V.A.

Made foot-operated and variable speed AUTOMATIC MOTOR DRIVE, no change gears, for welding from .0005 to $\frac{5}{8}$ " combined thickness. Welders for Fine Work Priced As Low As

\$55.00

Submit Your Problems



AUTOMATIC

EISLER ELECTRIC

763 So. 13th Street,

NEWARK, N. J.

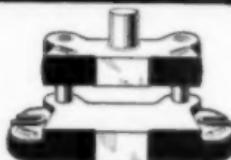
Distributor and Dealer Connections Desired

BETTER-MADE
DIE SETS

BAUMBACH

AT LOWER
COST

24
DIFFERENT
STYLES



OVER
95,000
SIZES

STANDARDIZED

DIE SETS

Semi-Steel

Drop Forged Steel

Send For Our New 208 Page Catalog

E. A. BAUMBACH MFG. CO.
1810 South Kilbourn Ave., CHICAGO, ILLINOIS

“ALNOR” Pyrometers

for the
Hardening
Furnace

MODEL 223

Inexpensive, yet accurate and durable, the ALNOR Pyrometer is used by large and small shops everywhere for heat-treating work. Because of its low first cost and compact size it is also very popular for soft metal melting, galvanizing, die-casting, japanning, enameling, measuring flue gas temperatures and many other purposes.



\$35

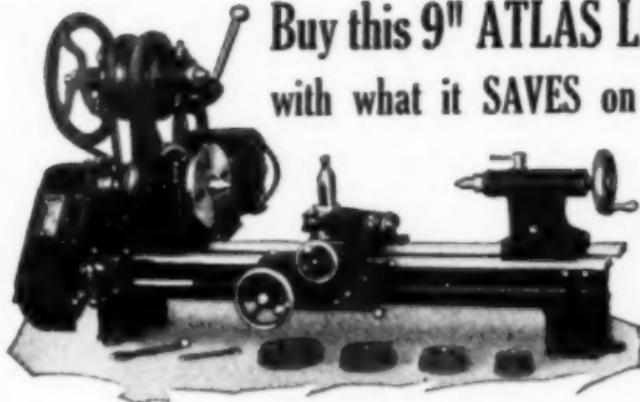
Case diam.
4 1/2 in.

Scale length
3 1/2 in.

With 10 ft. Alloy Wire,
connector block and a
No. 8 gauge insulated
thermo couple 24" long
without protection tube

Write for descriptive folder

Illinois Testing Laboratories, Inc.
150 W. Austin Ave., Chicago, Ill.



Buy this 9" ATLAS LATHE
with what it SAVES on power

\$79⁰⁰
Complete
as Shown
less motor.

Transfer your small lathe work from large, power consuming lathes to an ATLAS. Use only $\frac{1}{4}$ H. P. motor. Can easily pay for itself in 6 to 8 months. A fine, accurate machine, strongly built of best materials. Self contained. 18" between centers, also larger sizes. Cuts all standard screws from 4 to 72 per inch. Two weeks trial. Satisfaction or money back guaranteed. Easy terms. *Write for all details.*

ATLAS PRESS CO., 1850 N. Pitcher St.,
Kalamazoo, Mich.

WANTED

SALES PROMOTION AND ADVERTISING POSITION

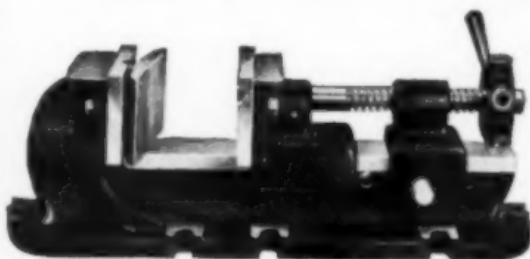
More sales inquiries and larger sales volume, domestic and foreign, can actually be produced by well known Sales Promotion and Advertising Manager, with unusual training and experience, now seeking new connection.

Ask to see credentials.

**Address: Box 112, c/o Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.**

Gem Drill Press Vise

Discard Obsolete Equipment!



Made
In
3-sizes
Up To
10½"

Equip Your Plant with GEM VISES

J. E. Martin Tool & Die Works
528 W. State St., SPRINGFIELD, OHIO

== WRITE FOR NEW PRICES ==

Abolish Expensive Hand Finishing
with a



Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

WALLS SALES CORP., 96 Warren Street
NEW YORK

To Industrial Plants

For the mutual benefit of yourselves and our advertisers, we want to be sure that the Blue Book goes, without cost, to those in your plant who can use it to good advantage.

Quite a number of you, particularly among automobile manufacturers, have sent us lists of the prominent men in your organizations who are most closely identified with the planning of your improvements and the selection or purchase of your machinery.

If you have not done this, you are earnestly requested to send us such a list of names, so that we may mail the Blue Book regularly every month to those of your own selection, without cost or obligation of any kind whatsoever. Simply tear out this page, write the names on the reverse side, and mail it to the publisher.

Our only object is to make the Blue Book the best buying and selling medium on earth between manufacturers of machine tools and shop equipment and plants such as yours.

(See next page)

HITCHCOCK PUBLISHING CO.
508 S. Dearborn St., Chicago, Ill.

Please send your Machine Tool Blue Book, without cost, to the following members of our organization, who have to do with planning the equipment of our machine shops and the selection or purchase of our machine tools and other shop requirements:

(Give both names and titles)

It is understood that you are to use the above names as a mailing list for your Machine Tool Blue Book only, and that they will not be used for any other purpose.

Name _____

Street No. _____

City _____ **State** _____

ARMSTRONG *Armide* TOOL SETS

bring the advantages of Carbide Cutting Tools within range of every machine shop, tool room and maintenance department. Will do all ordinary turning operations on the hardest steels and toughest alloys—on metals not ordinarily machinable. Sets of 4 or 5 Armide (Carbide Tipped) Cutters (standard forms, ready ground) with ARMSTRONG Carbide Tool Holder, in steel case.



Write for
Circular

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"
319 N. Francisco Ave., CHICAGO, U. S. A.



1905

Strand

1933

NO LET UP ON QUALITY
TO MEET CHEAPER MARKETS
IT DOES NOT PAY

Always Cheaper To Buy The Best

Type M7A—1½ H. P.



**STRAND
FLEXIBLE SHAFT
MACHINES**

Represent The Highest Class
Workmanship And Materials.

ALL AMERICAN MADE

Manufactured By

N. A. STRAND & CO.

5001-5009 N. Lincoln St.,

Chicago, Ill.



Let the **BLUE BOOK** be Your Messenger

*There are four cardinal points
to profitable advertising:*

1. The article advertised must have real merit.
2. The copy describing it should be clear and concise.
3. The advertising message should be delivered to the maximum number of responsible buyers.
4. The cost should be in fair proportion to the distribution of the medium used, quality of circulation considered.

The controlled circulation of ***Hitchcock's Machine Tool Blue Book*** will deliver your message to more responsible users and buyers of machine tools and allied equipment, including aircraft, automotive and other large manufacturing plants, railway mechanical officials, etc., in the United States, than any other publication on earth. It is also sent to the more important importers in all parts of the world.

If your product is right and your copy is right, then the use of the ***Blue Book*** as your advertising medium completes a combination that is unbeatable.

The rates are most reasonable—write for them

HITCHCOCK PUBLISHING CO.
508 South Dearborn St., Chicago, Ill.

No. 27 Polishing Machine

for Auto Bumpers, Stove Tops,
Stainless Steel,
Electric Irons and
Other Specialties.

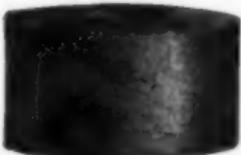


*"35 Years of
Polishing Machine
Experience"*

Manufacturers of Grinding and Polishing Machines,
Punch Presses, Shearing and Bending Machines.

Descriptive Illustrated Circulars and Prices on Request

Excelsior Tool & Machine Co., East St. Louis,
ILLINOIS.



**Punch MORE Holes
with
T. H. L. PUNCHES**

T. H. L. Punches will produce more than the average number of holes, for they are made of the highest grade, dependable tool steel and are hardened and tempered—right. Our experience of nearly 40 years in making of punches assures you satisfactory, continuous and profitable production.

A Trial Order

will convince you. We carry large stocks of regular sizes for immediate delivery—special sizes quickly made.

Write for a copy of our Catalog

T. H. Lewthwaite Machine Co.
311 East 47th St., (Est. 1890) New York City

Distribution of

Hitchcock's Machine Tool Blue Book

(Selected Circulation)

The table below shows the circulation of Hitchcock's Machine Tool Blue Book by States, and incidentally how the users of iron working machinery are distributed.

The figures given stand for the number of plants to which the Blue Book is sent, except for some hundreds of the larger manufacturers of metal products, where copies are addressed to the important mechanical officials by name.

The main reason why the Blue Book has thrived is its ability to put advertising messages across to the whole body of possible buyers everywhere in the country. Its value for that purpose hardly can be overestimated.

Revised to January 1, 1933

Alabama	149	Nevada	14
Arizona	34	New Hampshire	114
Arkansas	84	New Jersey	742
California	905	New Mexico	24
Colorado	189	New York	2,834
Connecticut	879	North Carolina	277
Delaware	52	North Dakota	32
District of Columbia	63	Ohio	2,874
Florida	115	Oklahoma	108
Georgia	246	Oregon	142
Idaho	25	Pennsylvania	2,605
Illinois	2,502	Rhode Island	189
Indiana	922	South Carolina	144
Iowa	468	South Dakota	32
Kansas	249	Tennessee	212
Kentucky	164	Texas	322
Louisiana	148	Utah	39
Maine	136	Vermont	82
Maryland	281	Virginia	194
Massachusetts	1,668	Washington	285
Michigan	1,673	West Virginia	147
Minnesota	376	Wisconsin	1,018
Mississippi	72	Wyoming	14
Missouri	668	American Possessions	77
Montana	40	Foreign (Canada, Europe, Australia, etc.)	659
Nebraska	124		
		Total	25,412

Of the above, 20,803 go to private concerns, 1,688 to railway mechanical and purchasing officials, 433 to technical schools, etc.

STOP Your Losses

with a Walton Tap Extractor



Remove that broken tap quickly — *without* injury to the threads.

About 90% of all taps break before they wear out. Each broken tap means stopped production, and the loss of a mechanic's valuable time. Decrease time spent on extracting broken taps and increase production. You can do it with a Walton Tap Extractor.

Made in three and four-flute styles.

A 60 day free trial will convince you

The Walton Company
302 Pearl St., Hartford, Conn.

MARKING DEVICES

RUBBER STAMPS



STEEL STAMPS



BURNING BRANDS



ETCHED METAL
NAME PLATES

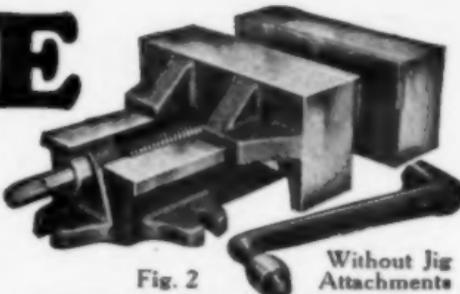
BRASS
LABELS

THE SCHWERDTLE STAMP CO.
BRIDGEPORT, CONN.

VICE

A good one for Driller,
Miller, Shaper, or Planer.

6", 9" and 12" Jaws



DRILL SPEEDER

or
H. S. Drilling
Attachment

Increases
the Speed
3 Times



Send for
Circulars
of ALL

KNURL HOLDER

for Turret Lathe
Adjustable to any size within capacity.



Swivel
Lugs

Shank
to suit Turret

THE GRAHAM MFG. CO.
76 Willard Ave., PROVIDENCE, R. I.



The Blue Book

Goes straight to the Heart of 96% of the
Best Plants in every State of the U. S. A.

The above statement is the result of careful mail inquiries
directed to thousands of the larger tool-using concerns.

It is also mailed every month to the leading importers of
American machinery and equipment in foreign countries.

Grant NOISELESS SPINNING Riveter



*Highest Speed
Perfect Uniformity
Lowest Cost*

A Grant Riveter places and finishes one rivet every second it is in operation.

It will finish rivets to the exact degree of tightness or looseness that you desire, and the heads are perfectly formed and highly polished.

The Grant Riveter keeps operating costs at a minimum, and is so simple that unskilled labor can operate it as effectively as can skilled machinists.

Send samples of your riveting work and ask for a catalog

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

For Light and Heavy Etching

With 24 Stages of Control.

The LUMA Master Etchtool fulfills every marking requirement that can be done by an electric Etching outfit.

A Production Tool with as many as 24 different stages or varieties of control for regulating the depth of marking, this tool can be used for extra light marking of machine scales, micrometers and fine tools or can be used for **extra heavy and deep** marking of rough and unfinished iron, cast iron, forgings, steel plates, etc.

Send for circular giving complete data and details of this modern instrument.



Built rugged for continuous work on the production line.

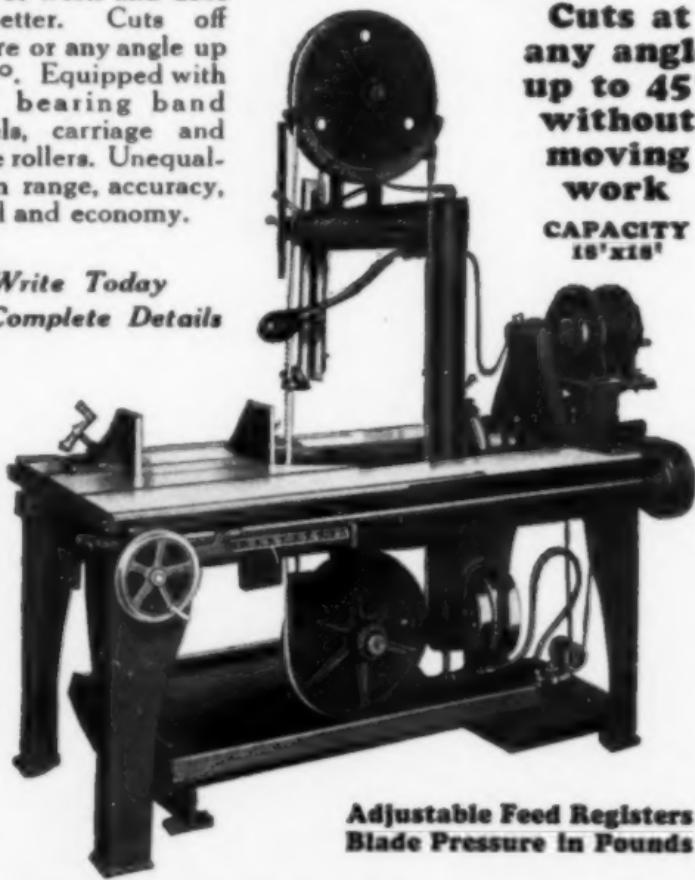
LUMA ELECTRIC EQUIPMENT CO.
DEPT. H.—Main P. O. Box No. 132—TOLEDO, OHIO

MARVEL

No. 8 Metal Band Saw

FULLY UNIVERSAL, simple to operate, always ready for any job—from the largest to the smallest. Cuts off bar steel, pipe, tubing, mouldings, structural shapes, etc. Does a greater variety of work and does it better. Cuts off square or any angle up to 45° . Equipped with ball bearing band wheels, carriage and guide rollers. Unequalled in range, accuracy, speed and economy.

*Write Today
for Complete Details*

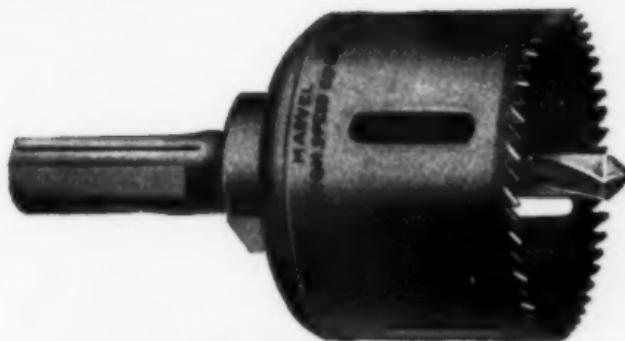


**Cuts at
any angle
up to 45°
without
moving
work**

CAPACITY
15' x 18'

ARMSTRONG - BLUM "M"
341 N. Francisco Ave., C

MARVEL



MARVEL HOLE SAW

26 Sizes, $\frac{3}{4}$ " to $4\frac{1}{8}$ "

Cuts clean, round holes through steel, wood, cast iron, brass, copper, bakelite, slate, marble, etc., to a depth of $1\frac{1}{2}$ in. The teeth are HIGH SPEED STEEL, welded to a tough, special alloy UNBREAKABLE BODY. They stand up in use in portable electric drills and drill presses. YOU WANT THE BEST. Write us for details, price, etc.



MARVEL HACK SAW BLADES

MARVEL High Speed Edge Hack Saw Blades are guaranteed not to break in two in any machine—not even by accident. Marvel blades with the genuine high speed steel cutting edge electrically welded to a tough special alloy back outlast ordinary blades from six to ten times and with faster, cleaner cuts, and fewer blade changes.

Send for Descriptive Circulars

MANUFACTURING CO.
CHICAGO, ILLINOIS

Classified Finding Index

Arbor Presses

Atlas Press Co., Kalamazoo, Mich.
Wilson K. R., Buffalo, N. Y.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.

Ball Bearings

Boston Gear Works, Inc., North Quincy,
Mass.

Band Saw Machines, for Metal

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago

Bending Machines, Hand and Power

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Excelsior Tool & Mfg. Co., E. St. Louis, Ill.
Lowthwaite Mfg. Co., T.H. 311E, 47th., N. Y.

Blowers, Electric

Clemente Mfg. Co., 6650 Narragansett Ave.,
Chicago, Ill.

Bolt and Nut Machinery

Foot-Burt Co., Cleveland, O.

Boring, Drilling & Milling Machines

Defiance Machine Co., Defiance, O.

Brakes, Hand Truck

Fisher Equip., 1281 Caxton Bldg., Chicago

Brands, Burning

Schwerdtle Stamp Co., Bridgeport, Conn.

Cap Screws, Hexagon Head

Kico Tool & Screw Corp., Rockford, Ill.

Centers, Frictionless Live

Precision Gauge & Tool Co., Detroit, Mich.

Centers, Special

Precision Gauge & Tool Co., Detroit, Mich.

Chain Drives

Boston Gear Works, Inc., North Quincy,
Mass.
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Chains, Silent and Roller

Cullman Wheel Co., 1359 Altgeld St., Chgo.

Chamfering Machines, Automatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Chucks, Automatic

Premier Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Collet

Premier Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Drill

Etco Tool Co., Brooklyn, N. Y.

Chucks, Drill and Tap

Premier Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Quick Change

Glenzer Co., J. G., Detroit, Mich.
Premier Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Ring Wheel Grinder

Graham Manufacturing Co., Providence, R. I.

Cold Saws

Burke Machine Tool Co., Connecticut, Ohio

Contract Work Wanted

Burke Machine Tool Co., Connecticut, O.

Counterbores and Spot Facers

Glenzer Co., J. C., Detroit, Mich.

Demagnetizers

Loma Electric Equipment Co., Toledo, Ohio

Die Casting Machines

Madison-Kipp Corp., Madison, Wis.

Dies, Blank and Forming

American Tool Works, Inc., Hartford, Conn.
Kico Tool & Screw Corp., Rockford, Ill.

Dies, Die Casting

Madison-Kipp Corp., Madison, Wis.

Die Sets

Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Drill Fixtures

Siewek Tool Co., Detroit, Mich.

Drill Jigs

Siewek Tool Co., Detroit, Mich.

Drill Heads, Multiple

Siewek Tool Co., Detroit, Mich.

Drilling Attachments, High Speed

Graham Manufacturing Co., Providence, R. I.

Drilling Machines, Multiple Spindle

Foot-Burt Co., Cleveland, O.

Drilling Machines, Portable Electric

Strand Co., N. A., 5001 N. Lincoln St., Chgo.

Drilling Machines, Sensitive

Burke Machine Tool Co., Connecticut, O.

Foot-Burt Co., Cleveland, O.

Drilling Machines, Vertical

Foot-Burt Co., Cleveland, O.

Classified Finding Index

Drills, Twist

Cleveland Twist Drill Co., Cleveland, Ohio.

Drives, Lathe

Culman Wheel Co., 1350 Altgeld St., Chgo.

Drive Screws

Eico Tool & Screw Corp., Rockford, Ill.

Electric Blowers

Clements Mfg. Co., 6850 Narragansett Ave., Chicago, Ill.

Electrical Instruments

Illinois Testing Laboratories, Inc., 180 W. Austin Ave., Chicago

Emery Wheel Dressers and Cutters

Western Tool & Mfg. Co., Springfield, O.

Engravers, Mechanical and Hand

Swordfile Stamp Co., Bridgeport, Conn.

Etching Machines, Electric

Luma Electric Equipment Co., Toledo, Ohio

Experimental Work

American Tool Works, Inc., Hartford, Conn.

Fixture Locks

Slewek Tool Co., Detroit, Mich.

Furniture, Machine Shop

Western Tool & Mfg. Co., Springfield, O.

Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.

Gears

Boston Gear Works Inc., North Quincy, Mass.

Grinder, Electric

M. C. Tool Co., 116 S. Aberdeen St., Chicago

Grinder, High Speed

M. C. Tool Co., 116 S. Aberdeen St., Chicago

Grinder, Hand

M. C. Tool Co., 116 S. Aberdeen St., Chicago

Grinding Machines, Belt

Walls Sales Corp., 96 Warren St., New York

Grinding Machines, Cutter, Reamer and Tool

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Internal

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Portable Electric

Strand Co., N. A., 6001 N. Lincoln St., Chgo.

Grinding Machines, Pulley Finishing

Graham Manufacturing Co., Providence, R. I.

Grinding Machines, Ring Wheel

Graham Manufacturing Co., Providence, R. I.

Grinding Machines, Surface

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Universal

Thompson Grinder Co., Springfield, Ohio

Grinding Wheels

M. C. Tool Co., 116 S. Aberdeen St., Chicago

Grinding Wheels, Mounted

M. C. Tool Co., 116 S. Aberdeen St., Chicago

Grinding Wheels On Shanks

M. C. Tool Co., 116 S. Aberdeen St., Chicago

Hack Saw Blades

Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago

Hack Saw Machines

Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago

Jigs and Fixtures

American Tool Works, Inc., Hartford, Conn.

Eico Tool & Screw Corp., Rockford, Ill.

Slewek Tool Co., Detroit, Mich.

Knurl and Holders, for Turrets

Graham Manufacturing Co., Providence, R. I.

Lag Screws

Eico Tool & Screw Corp., Rockford, Ill.

Lathes Drives

Culman Wheel Co., 1350 Altgeld St., Chgo.

Lubricators, Engine

Madison-Kipp Corp., Madison, Wis.

Lubricators, Machine Tool

Madison-Kipp Corp., Madison, Wis.

Mandrels, Expanding

Western Tool & Mfg. Co., Springfield, O.

Machine Screws

Eico Tool & Screw Corp., Rockford, Ill.

Milling Attachments

Burke Machine Tool Co., Connecticut, Ohio

Classified Finding Index

Milling Machines, Bench
Burke Machine Tool Co., Connest, Ohio

Milling Machines, Hand
Burke Machine Tool Co., Connest, Ohio

Milling Machines, Plain
Burke Machine Tool Co., Connest, Ohio

Name Plates, Etched and Stamped
Schwerdtle Stamp Co., Bridgeport, Conn.

Nuts, Machine Screw
Eico Tool & Screw Corp., Rockford, Ill.

Oil, Cutting
Sun Oil Co., Philadelphia, Pa.

Oil, Lubricating
Sun Oil Co., Philadelphia, Pa.

Pins, Leader And Dowel
Baumbach Mfg. Co., E. A., 1912 So. Kilbourne Ave., Chicago

Pipe Plugs, Square Head and Slotted
Eico Tool & Screw Corp., Rockford, Ill.

Polishing and Buffing Machines
Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Presses, Arbor
Atlas Press Co., Kalamazoo, Mich.
Wilson, R. E., Buffalo, N. Y.

Presses, Punch
Lewthwaite Mch. Co., T. H., 811 E. 47th, N. Y.
Allen-Morris Machine Tool Co., Kansas City, Mo.

Punch Press Feeds
Wittek Mfg. Co., 4309 W. 24th Place, Chgo.

Punch, Shear and Bender, Hand
Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago

Punches, Hand
Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago
Lewthwaite Mch. Co., T. H., 811 E. 47th, New York
Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies
Lewthwaite Mch. Co., T. H., 811 E. 47th, N. Y.

Punches and Shears
Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Pyrometers
Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Pyrometers, Portable & Stationary
Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago, Ill.

Reamers, Adjustable
Cleveland Twist Drill Co., Cleveland, Ohio.

Riveters, Multiple Spindle
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machines
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters
Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Lewthwaite Mch. Co., T. H., 811 E. 47th, N. Y.

Scraping Machines
Anderson Bros. Mfg. Co., Rockford, Ill.

Screw Driving Machines, Automatic
Reynolds Machine Co., Massillon, Ohio

Screw Machines, Automatic
Automatic Machine and Engineering Co., Inc., Detroit, Mich.

Screws, Cap, Drive, Lag, Mch. & Wood
Eico Tool & Screw Corp., Rockford, Ill.

Shafts, Flexible
Strand Co., N. A., 5001 N. Lincoln St., Chgo.

Shaping Machines
Osborne & Sexton Machy. Co., Columbus, O.

Shears, Hand
Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Lewthwaite Machine Co., T. H., 811 E. 47th St., New York
Whitney Metal Tool Co., Rockford, Ill.

Special Tools and Machinery
American Tool Works, Inc., Hartford, Conn.

Speed Reducers, Worm, Spur and Herringbone
Boston Gear Works, Inc., North Quincy, Mass.

Speed Reducers
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Spot Welding Machines, Speed
Eisler Electric Corporation, Newark, N. J.

Sprockets
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Stamps, Steel and Rubber
Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board
Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

Straightening Machines

Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago

Tapping Attachments

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.

Tapping Machines and Attachments

Burke Machine Tool Co., Cincinnati, Ohio
Ettco Tool Co., Brooklyn, N. Y.
Procurier Safety Chuck Co., 14 So. Clinton St., Chicago, Ill.
Whitney Metal Tool Co., Rockford, Ill.

Thermometers, Resistance Type

Illinois Testing Laboratories, Inc., 150 West Austin Ave., Chicago, Ill.

Threading Machines, Automatic, Stud

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Western Tool & Mfg. Co., Springfield, O.

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Inc., Norfolk Downs, Mass.

Used and Rebuilt Machinery

Akron Equipment Co., Akron, Ohio
Automatic Machine & Engineering Co., Inc., Detroit, Mich.

Bennett Machinery Co., 30 Church St., New York, N. Y.

Box Properties, Philadelphia, Pa.

Brotherhood & Son, Percy M., 25 Church St., New York, N. Y.

Brown Machinery Co., St. Louis, Mo.

Brownell Machinery Co., Providence, R. I.

Cincinnati Mch. & Supply Co., Cincinnati, O.

Used and Rebuilt Machinery—Cont.

Donahue Steel Products Co., 74th and Ashland Ave., Chicago

Eastern Machinery Co., Cincinnati, O.

Elyria Belting & Mch. Co., Elyria, Ohio.

Kasley Machinery Co., E. L., 825 Keen St., Chicago, Ill.

First United Finance Corporation, 215 West Randolph St., Chicago, Ill.

Gause, James, J., Boston, Mass.

Hill, Clark & Co., 645 W. Washington Blvd., Chicago, Ill.

Heworth Co., C. C., Detroit, Mich.

Hyman & Sons, Joseph, Philadelphia, Pa.

Indianapolis Machinery & Supply Co., Indianapolis, Ind.

Interstate Mch. Co., 130 S. Clinton, Chicago.

Iroquois Machinery Co., Buffalo, N. Y.

Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, Ohio

McDonald Machinery Co., St. Louis

Marr-Galbreath Mch. Co., Pittsburgh, Pa.

Midwest Equipment Co., 628 W. Lake St., Chicago, Ill.

Mid-West Machine Tool & Supply Company, Davenport, Iowa

Miles Machinery Co., Saginaw, W. S., Mich.

Norton-Broadway Mch. Co., Cincinnati, O.

O'Brien Machinery Co., Philadelphia

Oviatt & Co., D. C., Cleveland, Ohio

Patterson Tool & Supply Co., Dayton, Ohio

Robins & Sexton Mch. Co., Columbus, O.

Reeve-Fritts Co., 558 W. Washington, Chicago

Reliance Machinery Sales Co., Pittsburgh, Pa.

Russell Machine Co., Pittsburgh, Pa.

Scott-Bansbach Mch. Co., 4807 W. 20th St., Chicago

Segal Machinery Co., 809 W. Lake St., Chicago, Ill.

Seyfert's Sons, Inc., L. F., Philadelphia, Pa.

Simmons Machine Tool Corp., Albany, N. Y.

Strong, Carlisle & Hammond Co., Cleveland, Ohio

Tempo Bros. Motor Co., Brooklyn, N. Y.

United Machinery & Supply Co., St. Louis, Mo.

Victor Machinery Exchange, 251 Center St., New York City

West Penn Machinery Co., Pittsburgh, Pa.

White Mch. Co., A. D., 108 N. Jefferson St., Chicago

Wiggleworth Mch. Co., Cambridge, Mass.

Winterer, Herman, L., Philadelphia, Pa.

Vises, Drilling Machine

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Graham Manufacturing Co., Providence, R. I.

Martin Tool & Die Works, J. E., Springfield, O.

Vises, Machinists'

Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.

Vises, Shaper

Graham Manufacturing Co., Providence, R. I.

Welding Machines, Electric Spot

Eisler Electric Corporation, Newark, N. J.

Welding Machines, Resistance

Eisler Electric Corporation, Newark, N. J.

Wood Screws

Eco Tool & Screw Corp., Rockford, Ill.

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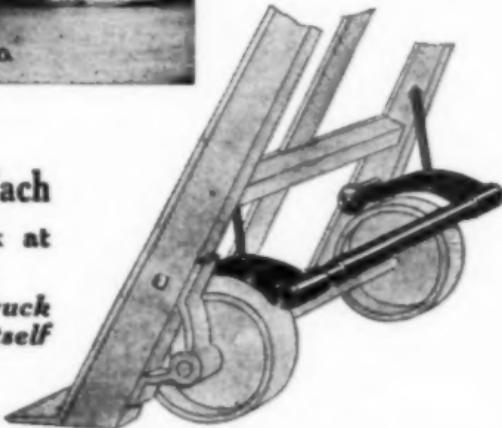


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Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

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Press, Lucas forcing, 30 ton.
Press, No. 4 Z. & H., inclinable.
Shaper, Steptoe 24", geared.
Presses, Waterbury Farrell, geared
pillar.

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Brownell Machinery Co. - - - - - **150 Pine St., Providence, R. I.**

Automatic drop, 500 lbs, standard type.
Hammer, 125 lbs. Beaudry Champion power forging.
Miller, No. 3 Cincinnati h. p. vertical.
Planer, 24" x 24" x 6" Whitcomb, 2 heads.
Saw table, No. 2 Crescent combination.

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Bennett Machinery Co. - - - - - **30 Church St., New York City**

Grinder, No. 50 Heald, hydraulic fd.
Lathes, 27" x 16" and 18" x 8' Prentice.
Lathe, 14-16" x 6' Lodge & S. cone.
Miller, No. 1 Hendey universal.
Miller, No. 3S Cincinnati univ.

Miller, No. 1 1/2 B Spec. Milw. pl. m.d.
Punch and shear, No. 23 Pels.
Radial drill, 4' Cincinnati-Bickford.
Shaper, 14" G. & E., b. g., m. d.
Turret lathe, No. 4 W. & S. univ.

FOR SALE BY

The Reeve-Fritts Co. **558-560 W. Washington Blvd., Chicago, Ill.**

Arbor press, No. 1 1/2 Atlas on stand.
Drill, 25" Superior, b. g. & p. f.
Drill, Washburn, 3 spdl., p. f., b. b.
Grinder, Wisconsin univ., c. & t.
Milling machine, No. 3 Rock. hand.

Milling machine, No. 2 Rock. plain.
Pinion cutter, Sloan & Chase, auto.
Pipe machine, Merrell, 6" cap.
Planer, 24x24x6 American.
Shaper, 20" Ohio heavy duty.

USED AND REBUILT MACHINERY

FOR SALE BY

Midwest Equipment Co., - 628-30 W. Lake St., Chicago, Ill.

Arc welder, General Electric, 200 amp. cap., m. d., complete.....	275.
Disc grinder, No. 2 Gardner 18", motor drive.....	150.
Drill press, No. 2 Avey, 4 spindle, 15" overhang, 99% new.....	400.
Gear hobber, No. 3 Barber Colman, with arbor and gears.....	250.
Lathe, 16" x 6" Lodge & Shipley, geared head, motor driven, complete.....	250.
Lathe, 19" x 8" Sidney, quick change, double back geared, complete.....	335.
Milling machine, No. 2 Cin. Univ., div. head, tail stock, vise and arbors.....	450.
Milling machine, No. 2 Rockford, univ., dividing head, vise, arbors.....	650.
Press, 30 ton Lucas straightening.....	150.
Punch press, No. 4 Marshalltown, o. b. i., bolster plate, like new.....	225.
Punch & shear, No. 53 Beloit, with angle cutting attachment.....	145.
Radial drill, 30" Fosdick, single pulley drive.....	350.
Shaper, 7" Rhodes, complete with vise.....	125.
Shaper, 14" G. & E., double back geared, vise.....	190.
Shear, power square, 50" Excelsior, 10 ga., 15" gap, like new.....	300.
Planers, Lathes, Screw Machines Air Compressors, Woodworking Machines.	

FOR SALE BY

The Jones Machine Tool Co., Front & Pike Sts., Cincinnati, Ohio

Brake, (press) Ohl 10'.....	\$1000.
Boring mill, No. 21 Lucas.....	1000.
Boring mill, No. 32 G. & L.....	1750.
Fitting machine, Thiel.....	375.
Gear cutter, No. 13 B. & S.....	375.
Gear hobber, No. 12 Barber-C.....	375.
Grinder, No. 1 Diamond surf.....	475.
Grinder, 16x72 Landis for cr.....	575.
Lathe, 24x12 B. & E., quick c.....	575.
Lathe, 32x12 B. & E., quick c.....	725.
Lathe, 36x14 Bradford.....	725.
Miller, No. 2 Owen universal.....	200.
Miller, No. 2M Cin'ti, s. p.....	575.
Millers, Nos. 2 & 3 Cin'ti, s. p.....	575.
Press, No. 3B Bliss-toggle.....	450.
Press, No. 164 Toledo-toggle.....	400.
Press, No. 40B Robinson, d. c.....	575.
Press, No. 42 Robinson, d. c.	1200.
Presses, horning 6, No. 21 Consolidated, each.....	125.
No. 14 Toledo adjustable table.....	425.
No. 6 Toledo b. g. inclinable.....	575.
Pipe machine, 8" Saunders.....	275.
Radial, 4' Fosdick cone drive.....	175.
Radial, 5' American, g. h.....	1000.
Shaper, 16" American, b. g.....	175.
Shaper, 24" Queen City.....	475.
Square shear, 52" Bertsch 3-6".....	475.
Square shear, 10' pwr., 14 ga.....	450.
Wheel lathe, 50", double head.....	325.

We have a large stock of Lathes, Radials, Shapers, Square Shears, Presses, etc., - all sizes. Let us have your inquiries.

FOR SALE BY

Interstate Machinery Co., - 130-2 So. Clinton St., Chicago, Ill.

Beader, Voder 20" thr., 14 ga. cap.....	
Bending rolls, 8" King Pyramid $\frac{1}{2}$ " cap., m. d. 8' 10' 8' 14' 3' 14'.	
Brake press, 10' 10 ga. Ohl m. d.	
Brakes, all sizes, hand and power.	
Folders, 30", 36" and 42".....	
Grinders, disc No. 24 Gard., 53" vert. sp., No. 8 Besly dbl. end with press	
Grinder, surface No. 2 Brown & S. automatic, with magnetic chuck,	
Lathes, 16x8 Walcott; 13x6 Champion with chuck, complete \$100.	
Millers, vert. No. 1 Knight; No. 2A Becker.	
Presses, o. b. i. No. 7 Bliss bk. grd.; No. 18-C Bliss; No. 4 Niagara;	
No. 4 Walsh; No. 3 Rockford.	
Presses, dbl. crank, No. 10 Wells, 6' bet. hous. 120 ton cap.; No. 40 Robi.	
No. 92-C & 92G Tol.; No. 24E Bliss.	
Press, No. 254 Bliss horn geared.	
Shapers, 98% new; 20" Kelly s. p. d.; 17" S. & M.; 18" Kelly \$85.	
Shears, ring and circle, all sizes.	
Straightening rolls, 54" m. d.	
Shears power, 90% new Pexto, 52" 16 ga.; 62" 16; 8' 18; 10' 18; 62" 10; all geared motor drive; 10' 14 ga; Niagara; 10' 3/16" Chicago Steel.	
Shears, throatless $\frac{1}{2}$ " 10 ga., 14 ga.	
Welder, 15 k. w. Thompson 24" thr.	
Wire straightener, No. 2 Wells 7' c. o.	

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Pittsburgh, Pa.

Automatic, No. 9 Brown & S. b. d.
 Air compressors, 30 to 2500 cu. ft.
 Blower, Spencer turbine, 1800 c. f.
 Bolt cutter, 1" Landis, 3 hds., m. d.
 Bolt cutter, 2" Acme, sgl. hd. m. d.
 Boring mill, 30" Bullard, turret hd.
 Boring mill, 36" Bullard, rapid prod.
 Boring mill, 72" Pond, 2 hds., b. d.
 Boring mill, 10-16" Betts, 2hds. m. d.
 Boring mill, horiz. D. & H., 5" bar.
 Brake, 5' press type, 10 gauge.
 Brake, 8' D. & K. 10 ga. box & pan.
 Brake, 10' Dreis & K., 4", m. d.
 Bulldozers, Nos. 2, 4, 6, 28, 29 & 30.
 Cranes, Electric Traveling.
 Derrick, 10-ton, 60-ft. boom.
 Die threader, Smalley General, dies.
 Die sinker, No. E-3 Keller, m. d.
 Drill, bench, 12" Buffalo, a. t., m. d.
 Drill, mul. 4-sp., Moline Hole Hog.
 Drill, radial, 24" Fosdick, t. a., b. d.
 Drill, radial, 34" Cin-Bickford, s.p.d.
 Drill, radial, 4" Prentice, t. a., b. d.
 Drill, radial, 6' Dresses, s. p. d.
 Flanger, McCabe, 4" capacity, dies.
 Gear cutters, 11", 24" & 36" Gleason.
 Gear cutter, spur, 36"x10" Newark.
 Gear hobber, No. 4 Sch. & Sch. 118".
 Grinder, centerless, No. 2 Cincinnati.
 Grinder, centerless, No. 4-C Detroit.
 Grinder, internal, No. 70 Heald.
 Grinder, rad., 14" M. & D., m. d.
 Grinder, surface, No. 16 Blanchard.
 Grinder, surface, 14" Arter.
 Grinder, surface, No. 2 Reid, b. d.
 Grinder, tool & cut., No. 2 Walker.
 Hammer, Blacker, power, 35-lbs.
 Hammer, 80-lb. Bradley, cush. helve.
 Hammer, 200-lb. Bradley, cush. helve.
 Hammer, 200-lb. Bradley, compact.
 Hammers, Nos. 2-B, 3-B, 4-B, Naxel.
 Hammers, steam, 800 lb. to 6000 lbs.
 Header, No. 2 Wat. Far. o.d., tr. st.
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 Keyseater, No. 0 & 3 Baker.
 Lathe, 14"x6" Hendey, q. c. g., m. d.
 Lathe, 16"x6" LeBlond, q. c. g., d.b.g.
 Lathe, 24"x16" Bridgeford, g. hd. m. d.
 Lathe, 26"x20" Bridgeford, g. h. m. d.
 Lathe, 48"x26" Bridgeford, g. hd. m. d.
 Lathe, turret, No. 6 Warner & S.
 Lathe, turret, 18" Libby, m. d.
 Lathe, turret, 24" Steinle, 4" hole.
 Lathe, tur., 26" Gisholt, 9" hole, m. d.
 Lysholm tables, 72"x30".
 Miller, duplex, 24" Cincinnati, auto.
 Miller, plain, No. 2-A Milwaukee.
 Miller, universal, No. 3 LeBlond.
 Nut tapper, 6-spindle Acme, 2".
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 Pipe mch., 8" Oster, 8" Williams.

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 Planer, o. s., 36"x36"x16" D. & H.
 Planer, o.s., 48"x48"x16" D. & H.m.d.
 Planer, rotary, 48" Niles, m. d.
 Presses, arbor, No. 17 Greenerd.
 Press, automatic, McDonald.
 Press, o.b.i. Ferracute Cl, 3" stroke.
 Press, o.b.i., No. 5 Rockford: 8500 lb.
 Press, hyd. tire, 300-ton W.-S.-M.
 Press, hydraulic, 1,000 ton United.
 Press, hyd., 400-ton Robertson, m. d.
 Press, hyd 100-ton Watson-Stillman.
 Press, s. s., 13"x19", 2" stroke.
 Press, No. 78^{1/2} Bliss, t. r. 10" str.
 Press, No. 92 B Toledo, d.c. 24" str.
 Press, No. 96-A Toledo, d.c. 5" str.
 Press, screw, No. 87 Niagara.
 Press, wheel, 200-ton Lourie.
 Punch, hand, Shatz, bar and angle.
 Punch & sh. No. 6 L. & A. 4" thru 1".
 Punch, No. 3-A Royersford, 26" thrt.
 Punch, EF Cleveland, 36" thrt., 1"-1".
 Punch, multiple, No. 5 H. & J. 10".
 Riveters, air, hammer, spinning.
 Rolls, bending 7"x8" Cleveland.
 Rolls, bend, 8"x8" Bertsch, d.e. b.d.
 Rolls, bending, 12"x8" H. & J. d. e.
 Roller, thread, Nos. 30-40 & 60 W.-F.
 Saw, band, metal No. 2 Klem, m. d.
 Saw, band, No. 8 Marvel.
 Saw, cold, 48" Newton, m. d.
 Saw, friction, Nos. 2 & 3 Ryerson.
 Saw, hack, No. 5 Marvel, 6"x6".
 Saw, hack, No. 4 Robertson, 8"x8".
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 Shapers, 16", 20", 24" & 36" G. & E.
 Shaper, 48" Morton draw cut, m. d.
 Shear, angle, 6"x6"x1" H. & J.
 Shears, alligator, 14", 2", 3" & 4".
 Shear, bevel, Lennox 4", b. d.
 Shear, No. 1 Gray, 3/16", 34" gap.
 Shear, slitter, gang 36" Voder, m. d.
 Shear, guil. No. 5 H. & J. 4" sq., m. d.
 Shear, rotary, 4" Ryerson.
 Shear, 36"x16 ga. Pexto, foot.
 Shear, squ., 80"x3/16" McSherry b.d.
 Shear, squaring 8"x14 ga. Ohl.
 Shear, sq., 10"x10 ga. Kutscheid, m. d.
 Shear, squ., 12' Niagara, 10 ga., m. d.
 Shear, 54" x 4" Garrison, 24" gap.
 Shear, 12" x 4" Wheeling, 31" gap.
 Slotter, 18" Dill, motor drive.
 Straight'r, 48" United, 16 ga. 13 rolls.
 Straightner, 14" round Abramson.
 Straightener, 4" round Abramson.
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 Testing mch., Brinnell hardness.
 Testing mches., 50,000 & 100,000-lb.
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Brown Machinery Co.,

Drills: 24", 26" and 32" Barnes and Rockford; 4-spindle Moline. Grinders: No. 6 Besly dbl. spindle; No. 220 Badger auto. disc; 12x30" Modern, plain, s. c. c. s.; No. 12 Brown & Sharpe, universal tool. Hammer, 40 lb. Bradley, halve. Lathes, 30" Blaisdell; 28-40" Lodge & Shipley; 26" Putnam, t. a.; 20" American, t. a.; 16" L. & S.; 16" Monarch; 12" & 14" Sen. Falls, q.c.g.

2333 N. 9th St., St. Louis, Mo.
Millers: No. 2 Hendey-Norton, univ.; No. 3½ Fox; No. 4 Hendey Lincoln; No. 3 Kemsmith, universal. Press, No. 7 Zeh & Hahneman, Nos. 1, 3, 4 Loshbough Jordan. Punch, Cleveland C 1 in 4"; Rock River Stvle L 1 in 4". Shaper, 24" Ohio. Shear, 50" 10 ga Excelsior gap. Threaders: 1" Geometric; National 1½" double head.

FOR SALE BY

The Elyria Belting & Machinery Co.,

Corner Williams and Buckeye Streets,

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Double end punch, 1" thru 1", motor drive, arch. jaw. Gold and silver crusher and grinder, No. 1 Ideal. Hammer, power, 75 lb. Beaudry Champion. Hoist, 1 ton. Reading, 220 volt, 3 phase. Lathe, 24" x 12" Advance, 92" centers. Lathe, American Tool Works, 36" swing, 14' bed. Presses, No. 5A Toledo inclinable, 3" stroke. Presses, Nos. 55, 56, 56½ Consolidated forging, 4" and 6" stroke, geared, s. s. Washing machine, Laundry, Jefferson 6 pocket.

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Miller, No. 2 Cincinnati universal. Press, P-3 Ferracute punch, m. d. Press, No. 3 Niagara, o. b. i. Press, trimming, 6½" shaft Massillon. Press, Bliss No. 5½ double crank. Planer, 36" x 36" x 8" Gray, 2 heads. Punch, No. 43 Whittemore comb. Punch, Bertsch, 12" tht., arch. jaw, 1" x 1", m. d. Riveters, Nos. 2-A, 3-A Hi-Speed.

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No. 24-B Bliss, grd., tie rod, bed 55" x 14", opening in back 42", wgt. 16,000 lbs.
No. 203-D Toledo, grd., bed 52" x 12", opening in back 43", wgt. 10,600 lbs.

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No. E-52 Ferracute, 150 tons pressure, width bet. uprights 13", wgt. 7000 lbs.
AUTOMATIC DROP PRESS.

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Boring mill, horizontal 3" bar, b. m.
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Brake, 52" x 18 ga., P. S. & W., hand.
Brake 10" Keene toggle, 16 gauge.
Brakes, hd. 10", for 18 ga. Robinson.
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Crimping roll, 64' Robinson, 16 ga.
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Drill, radial, 5' Western, g. b., m. d.
Drill, radial, 3' Dreses.
Drill, 26" Prentice, b. g., s. h., m. d.
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Grinder, universal t. & c. Nos. 2 & 3.
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Lathe, 14" x 6" Hendey, m. d., t.a.
Lathe, 18" x 8" L. & S. sel. hd. a. p. d. t.a.
Lathe, 19" x 10" LeBlond, q. c. g., t.a.
Lathe, 20" x 12" Monarch, q. c. g., t.a.
Lathe, 22" x 10" 10" Greaves-K., q. c. g.
Lathe, 24" x 12" Pgh., q. c. g., chuck.
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Shear, 10" x 16 ga. Ohl power.
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Lathe, 20x8 Hendy yoke head, quick change gear, taper attachment..... 350.
Lathe, 36x16 Lodge & Shipley quick change gear, 4 sp. motor & control 450.
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Miller, No. 2B Milwaukee, universal, single pulley drive, all pow. fds... 250.

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Drill, 30° tapping attachment.
Drill, 40" Universal, radial.
Drill, 4 spindle Allen, b. b.
Gear cutter, 36" Gould & Eberhardt.
Lathe, 42"x17" Bement.
Lathe, 19"-21"x8'6" Sidney, t. a.
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Tur.lathes, No. 2A W. & S.; 18" Libby

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Grinder, 10"x36" Norton.	Millers, Nos. 1 & 2 Brown & Sharpe.
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Grinder, No. 22 Heald rotary surf.	Turret lathe, No. 6 Warner & S.
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Planer, 42" x 42" x 26" Wheeler, 2 hds.	
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Press, No. 1 1/2 Bliss toggle.	
Press, No. 3 Toledo.	
Press, No. 37 Niagara str. back.	
Press, No. 24 Toledo cam drawing.	
Press, No. 723 Toledo cam drawing.	
Punch, No. 14 W. W., 12" throat.	
Punch, double end, two 20" throats, capacity 1" in 1".	
Screw machine, No. 3A Warner & S.	
Shaper, 16" Ohio.	
Shaper, 24" American, b. g. crank.	
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Gear hobber, S. & S. No. 0, capacity 12" x 10" x 6 1/2" d. p.	200.
Gear cutter, B. & S. No. 3, 26" for spur gears	200.
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Lathe, 18" x 6" Hendey quick change, taper attachment, serial No. 19189	350.
Lathe, 20" x 8" Monarch, d. b. g., q. c. chucks	250.
Lathe, 30" x 13" H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.	800.
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Miller, No. 2 MU Garvin universal, fully equipped	350.
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46" x 16" H. S. & G. Grd. Hd., late type.
24" x 12" L. & S. Patent Grd. H. S. P. D.
30" x 10" Lodge & Shipley, 3 S. C. D.
D. B. G. Q. C.
20" x 8" Am. Grd. Hd., M. D., late t.
18" x 8" Reed-Prentiss Grd. Hd. Q. C.
20-30" x 7" Monarch Helical G. H. Gap
16" x 6" Lodge-Shipley Sel. Grd. Hd.

Grinders

Nos. 55, 60, 65 and 70 Healds.
No. 4-A Landis Crankshaft Grinder.
6" x 18" Landis Plain, Self Contained.
No. 11 Brown & Sharpe Plain.
Walker Single Stroke Surface Grinder.
10" x 52" Landis Plain, Self Con.
No. 14 Gardner Disc Grinder.
Rivett Internal Grinder.
12" Pratt & Whitney Surface.
No. 2 Bath Universal Grinder.
No. 2 Brown & Sharpe Surface.
No. 3 Brown & Sharpe Universal.
No. 13 B. & S. Universal Tool Room
Grinder, complete equipment.

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No. 12 Barber-Colman Hobber, dbl.
overarm, late type
No. 13 B. & S. Bevel and Spur.
18-H Gould & Eberhardt Hobber.
6", 11", 18" Gleason Gear Generators.

Bolt and Pipe Threaders

½" Landis Double-Spindle
1½" Landis Sgl.-Sp., Grd. Hd. m. d.
1" Acme Class "A" Single-Spindle,
2" Landis Sgl.-Sp., lead screw attach.
2" Landis Double-Spindle.
6" Oster Pipe Machine, motor drive.

Boring Mills

24", 36" and 42" Bullard "New Era"
A. C. motor drive.
60" Niles Boring Mill, 2 heads.
84" Niles Vertical, motor drive.
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No. 4 Cincinnati H. P. Pl. S. P. D.
No. 4-B Milwaukee Plain; Dbl. Over-
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No. 2-B Milwaukee Plain, Double
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No. 3 Cincinnati Vert. H. P., S.P.D.
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No. 2 Cincinnati Universal H. P.
flange nose; S. P. D.
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18" Cincinnati Plain Mfg. Miller.
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6-spindle Rockford 20" B. G. P. F.
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16", 20", 24" G. & E., mtr. dr. thru g. b.
20" Steptoe, S. P. D.
20" Gould-Eberhardt, High Duty.
24" Potter-Johnson M. D. thru gear box
24" Cinti. h. d. mtr. dr. thru gear box.

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No. 3-B LaP. int. Broaching McHe.
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Automatic, National-Acme.
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Sand Blast, Boland.
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COLUMBUS OHIO**

Dept. H.

All Alone

Manager of Hotel (where a newly married couple are staying): And is there anything else I can do for you folks? (The fifth time he asked the question.)

Young Husband: Yes, some honeymoon salad.

Manager: May I ask what are the ingredients?

Young Husband: Just lettuce alone.

Why, Tommy?

Thanks very much, said the school teacher, as Tommy offered her some apples, I will call around and thank your mother for these three nice apples.

Teacher, please, pleaded little Tommy, would you mind thanking her for six apples?

Our Mistake, Waiter

A very green couple from the country were on their honeymoon. A town friend had recommended a certain London restaurant where shellfish were a specialty.

Oh, said the bride, after scanning the menu, I think I'll have a dozen lobsters!

Lobsters, madam? echoed the waiter. You don't mean that?

Of course she means lobsters! The groom gave the waiter a severe look. And you may bring me a dozen, too.

In due course the waiter appeared, staggering under two trays piled high with the red shellfish. He placed a dozen in front of the girl and a dozen in front of the man.

The young husband looked at them aghast. So did his bride. She was the first to recover her speech.

Don't you think, dearest, she said, that maybe it was oysters Harold told us to get?

That's an Idea

Willie: Mamma, are you going to get the new coat you want from Santa Claus this Christmas?

Mother: I'm afraid not, my dear.

Willie: Have you tried throwing yourself on the floor and kicking with your feet and yelling like I do?—*Pathfinder*.

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- 20" x 10' Schumacher & Boye, c. r.
- 24" x 12' Monarch, c. r., g. h., mtr. dr.

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3' American Radial, enclosed head.

- 4' Bickford Radial, gear box.

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7/64	.35	1.26
1/8	.36	1.26
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5/32	.48	1.26
11/64	.49	1.26
3/16	.57	1.45
13/64	.59	1.45
7/32	.60	1.62
15/64	.60	2.55
1/4	.82	2.55
17/64	.88	3.19
9/32	.95	3.19
19/64	.98	3.68
5/16	1.09	3.66
21/64	.94	4.25
11/32	1.27	4.25
23/64	1.10	4.68
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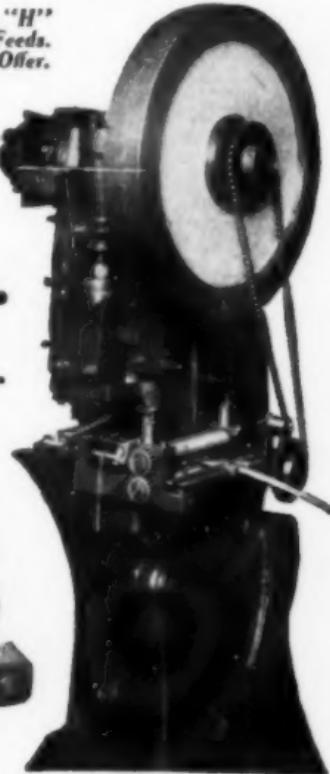
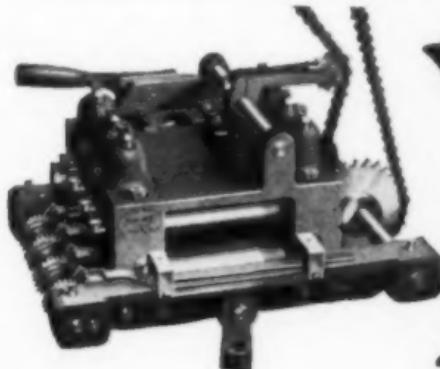
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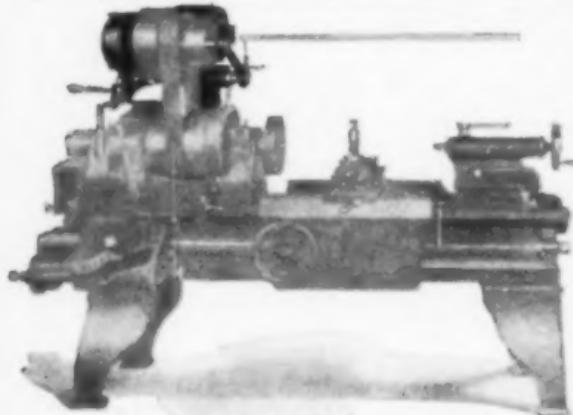
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